

## **REMARKS**

In response to the Office Action dated December 3, 2001, claims 1, 2 and 12 have been amended and claims 21-25 have been canceled. Therefore, claims 1-20 are now in the case. Reexamination and reconsideration of the application as amended are requested.

### **Election**

In response to the restriction requirement set forth in the Office Action, the Applicant hereby affirms the election without traverse to prosecute the invention of Group 1, which includes claims 1-20.

### **Claim Objection**

The Office Action objected to claim 1 because the word "that" appears in succession on line 12. In response, the Applicant has deleted the extra occurrence of the word "that".

### **Examiner Interview**

Pursuant to 37 C.F.R. § 1.133, 37 C.F.R. § 1.2, and MPEP § 713.04, record is made of a telephonic interview that occurred on February 22, 2002 involving the Applicant's attorney, Mr. Craig Fischer, Examiner Tung S. Lau, and Examiner Lau's supervisor, Examiner John Hilten. The Applicant wishes to thank Examiner Lau and Examiner Hilten for taking the time to discuss the subject application with Mr. Fischer.

The interview, which did not include any exhibits or demonstrations, discussed the rejection of claims 1-20 under 35 U.S.C. § 112, second paragraph as set forth in the Office Action dated December 3, 2001. No specific prior art or references were discussed during the interview. In particular, Mr. Fischer presented the position that each of the terms contained in the rejected claims are defined in the Applicant's specification or are well known to those having ordinary skill in the art. Mr. Fischer pointed out that MPEP § 2173.02 states that the definiteness of claim language must be analyzed, not in vacuum, but in light of the "content of the particular application disclosure", and that the Applicant's specification defines the terms in the claims. Upon request, Mr. Fischer then pointed out specific instances in the specification where the term "transformation parameters" was defined. No agreement was reached; however, the interview concluded with Examiners

Tau and Hilten asking Mr. Fischer to point out in the response to the Office Action where terms in the rejected claims were defined in the specification.

### Section 112, Second Paragraph Rejections

The Office Action rejected claims 1-20 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicant regards as his invention.

The Applicant respectfully traverses these rejections. In particular, the Applicant submits that claims 1-20 do particularly point out and distinctly claim the subject matter of the Applicant's invention. The primary purpose of the definiteness requirement of claim language as set forth in 35 U.S.C. § 112, second paragraph, is to "ensure that the scope of the claim is clear so the public is informed of the boundaries of what constitutes infringement of the patent" (MPEP §2173). A secondary purpose is to clearly show what the Applicant regards as the invention so that it can be "determined whether the claimed invention meets all the criteria of patentability and whether the specification meets the criteria of 35 U.S.C. § 112, first paragraph" (MPEP § 2173).

In writing the claims, the Applicant is his own lexicographer (MPEP § 2173.01). The Applicant may use "functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought" (MPEP § 2173). In addition, the court in *In re Swinehart*, 439, F.2d 210, 160 USPQ 226 (CCPA 1971), held that a claim may not be rejected solely on the basis of the type of language used to define the subject matter (see also MPEP § 2173.01). Latitude is given to the Applicant to define the patentable subject matter of his invention with a "reasonable degree of particularity and distinctness" (MPEP § 2173.02). In other words, leeway is allowed in the manner of expression and the aptness of terms, "even though the claim language is not as precise as the examiner might desire" (MPEP § 2173.02). According to MPEP § 2173.02, the definiteness of claim language must be analyzed, not in vacuum, but in light of the "content of the particular application disclosure". Thus, the language of the claims and terms set forth in the claim must be examined in light of the Applicant's specification.

The Applicant maintains that, when examined in light of the Applicant's specification, claims 1-20 do particularly point out and distinctly claim the Applicant's invention. The Office Action stated that the claims are replete with undefined terms and that it is unclear how to perform all the steps recited in the claims, such as selecting, calculating and applying. However, the Applicant respectfully maintains that the terms and steps recited in the claims are defined and described in the specification. Thus, claims 1-20 are definite under 35 U.S.C. § 112, second paragraph when examined in light of the specification.

The Office Action stated that claim 1 was rejected because it was not clear what the "transformation parameters" were and how these parameters were calculated based on the "object path". In response, the Applicant respectfully traverses this rejection. In particular, the term "transformation parameters" are defined in the Applicant's specification (see, for example, page 3, line 25 to page 4, line 4; page 9, line 28 to page 10, line 5; page 12, lines 13-23; page 12, line 29 to page 13, line 4; page 14, lines 14-22).

The specification describes the various ways in which the transformation parameters are calculated using the object path and the data from the base camera and non-base camera measuring the object path. For example, one way is by matching of the data (see claim 3 and, specification, for example, FIGS. 9A, 9B, 9C and 9D; page 13, lines 23-25; page 16, line 23 to page 17, line 18). Another way is by overlapping the data (see claim 19 and, specification, for example, FIGS. 7A, 7B and 7C; page 14, line 23 to page 15, line 24).

The Office Action stated that claim 2 was rejected because the phrase "object path is a person" was unclear.

In response, the Applicant respectfully traverses this rejection. However, in an effort to further and expedite the prosecution of this application the Applicant has amended claim 2 to more particularly point out and distinctly claim the invention. In particular, amended claim 2 now makes even clearer the fact that the object path is the path a person makes the person moves around a scene. This is supported by the Applicant's specification (see, for example, page 2, lines 3-14; page 11, lines 12-21; page 18, line 25 to page 19, line 9).

The Office Action stated that claim 3 was rejected because the term "data" was not

defined. Therefore, it was unclear how matching of the data occurs.

In response, the Applicant respectfully traverses this rejection. Claim 3 includes a method for calculating the transformation parameters by matching the data measured by the base camera with the data measured by the non-based camera. As discussed above, this data matching is one of the ways in which the transformation parameters may be calculated, and this is set forth in the Applicant's specification (for example, FIGS. 9A, 9B, 9C and 9D; page 13, lines 23-25; page 16, line 23 to page 17, line 18).

The Office Action stated that claim 4 was rejected because it was unclear how data matching is performed and how data matching is used to solve a set of transform equations.

In response, the Applicant respectfully traverses this rejection. Claim 4 includes a method for calculating the transformation parameters by using a set of transform equations to perform data matching. This method is described in the Applicant's specification, for example, in the Working Example (page 18, line 25 to page 23, line 14).

Claim 5 was rejected in the Office Action because it was unclear how the points of the object path were matched.

In response, the Applicant respectfully traverses this rejection. Claim 5 includes a method of selecting a time value and then matching data points of the object path (as measured by the base camera) at the selected time value with data points of the object path (as measure by the non-base camera) at the selected time value. This method of matching using a time value is described in the Applicant's specification (for example, FIGS. 9A, 9B, 9C and 9D; page 13, lines 23-25; page 16, line 23 to page 17, line 18).

The Office Action stated that claim 6 was rejected because of contradictory terms. In particular, if no data point was measured, it is unclear how to interpolate.

In response, the Applicant respectfully traverses this rejection. Claim 6 includes a method for interpolating between data points sampled before and after the time value to generate a data point at the time value. This data point is generated using this interpolation

technique if no data point was measured at the time value. In other words, if a time value is selected and no data point is available at that time, the data point must be interpolated from surrounding data points. This claimed interpolation technique is described in the Applicant's specification (for example, FIGS. 9C and 9D; page 13, lines 6-16; page 16, lines 11-18; page 16, line 23 to page 17, line 14; page 20, lines 16-26).

Claims 7, 8 and 9 were rejected in the Office Action because the meaning of "error minimization technique", "least squares solution" and "least median of squares solution" was unclear.

In response, the Applicant respectfully traverses these rejections. Claim 7 includes a method for using an error minimization technique to determine transformation parameters having the least amount of error. The purposes of using an error minimization technique and the types of error minimization techniques that may be used are set forth in the Applicant's specification (for example, page 17, line 19 to page 18, line 2). Moreover, the working example of the Applicant's specification details the use of the least squares solution of claim 8 and the least median of squares solution of claim 9 (page 21, line 1 to page 23, line 14). Thus, the Applicant respectfully submits that claims 7, 8 and 9 particularly point out and distinctly claim the subject matter that the Applicant regards as his invention.

The Office Action stated that claim 10 was rejected because the phrase "time offset" was not defined. Therefore, it was unclear how to obtain this time offset.

In response, the Applicant respectfully traverses this rejection. Claim 10 includes a method for applying a time offset to at least one of the data measured by the base camera and data measured by the non-base camera. This time offset corrects for unsynchronized data between the base camera data and the non-base camera data. This problem and the phrase "time offset" are defined in the Applicant's specification on page 16, lines 4-11. In addition, FIG. 10 and page 18, lines 3-18 of the specification explain how a time offset value is obtained. Further, the specification gives a working example of how a time offset value may be obtained and used (page 20, lines 6-15).

Claim 11 was rejected in the Office Action because it was unclear how the "time offset

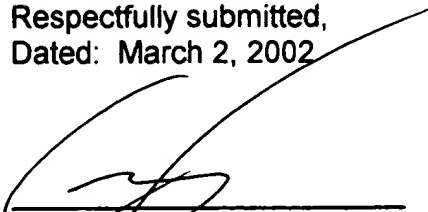
value" with the least amount of error was determined.

In response, the Applicant respectfully traverses this rejection. Claim 11 includes a method wherein a time offset value and corresponding transformation parameters are calculated and an error minimization technique is used to determine time offset value having the least amount of error. As discussed above, the time offset value and determining the time offset value having the least amount of error using an error minimization technique is described in the Applicant's specification and also set forth in the working example (page 22, line 3 to page 23, line 14). Therefore, the Applicant respectfully submits that claim 11 particularly points out and distinctly claims the subject matter that the Applicant regards as his invention.

Claims 12-20 were rejected by the Office Action because the claims are replete with undefined terms similar to the ones set forth above. In response, the Applicant respectfully traverses this rejection. As noted above, each of the terms contained in claim 1-20 are defined in the Applicant's specification.

In view of the preceding arguments and claim amendments the Applicant respectfully submits that claims 1-20 of the subject application are in immediate condition for allowance. The Examiner is respectfully requested to withdraw the outstanding rejections of the claims and to pass this application to issue. Additionally, in an effort to expedite and further the prosecution of the subject application, the Applicant kindly invites the Examiner to telephone the Applicant's attorney at (805) 278-8855 if the Examiner has any comments, questions or concerns.

Respectfully submitted,  
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**VERSION WITH MARKINGS TO SHOW CHANGES MADE****IN THE CLAIMS**

Following are marked-up versions of amended claims 1, 2 and 12:

1. (Once Amended) A method of determining a relative position and orientation between a base camera and a non-base camera, comprising:  
measuring a path of an object with the base camera in a base coordinate frame;  
measuring the object path with the non-base camera in a non-base coordinate frame;  
calculating transformation parameters based on the object path;  
applying the transformation parameters to the object path measured by the non-base camera such that [that] the object path measured by the non-base camera [may be] is expressed in the base coordinate frame.

2. (Once Amended) The method of claim 1, wherein the object path is a path of a person moving around a scene.

12. (Once Amended) A method of measuring a relative pose between two cameras, comprising:  
selecting a time offset value corresponding to a time shift between the two cameras; and  
calculating a transformation parameter using the time offset value, the transformation parameter capable of transforming data in a coordinate frame of one of the two cameras into a coordinate frame of the other of the two cameras so as to obtain the relative pose.